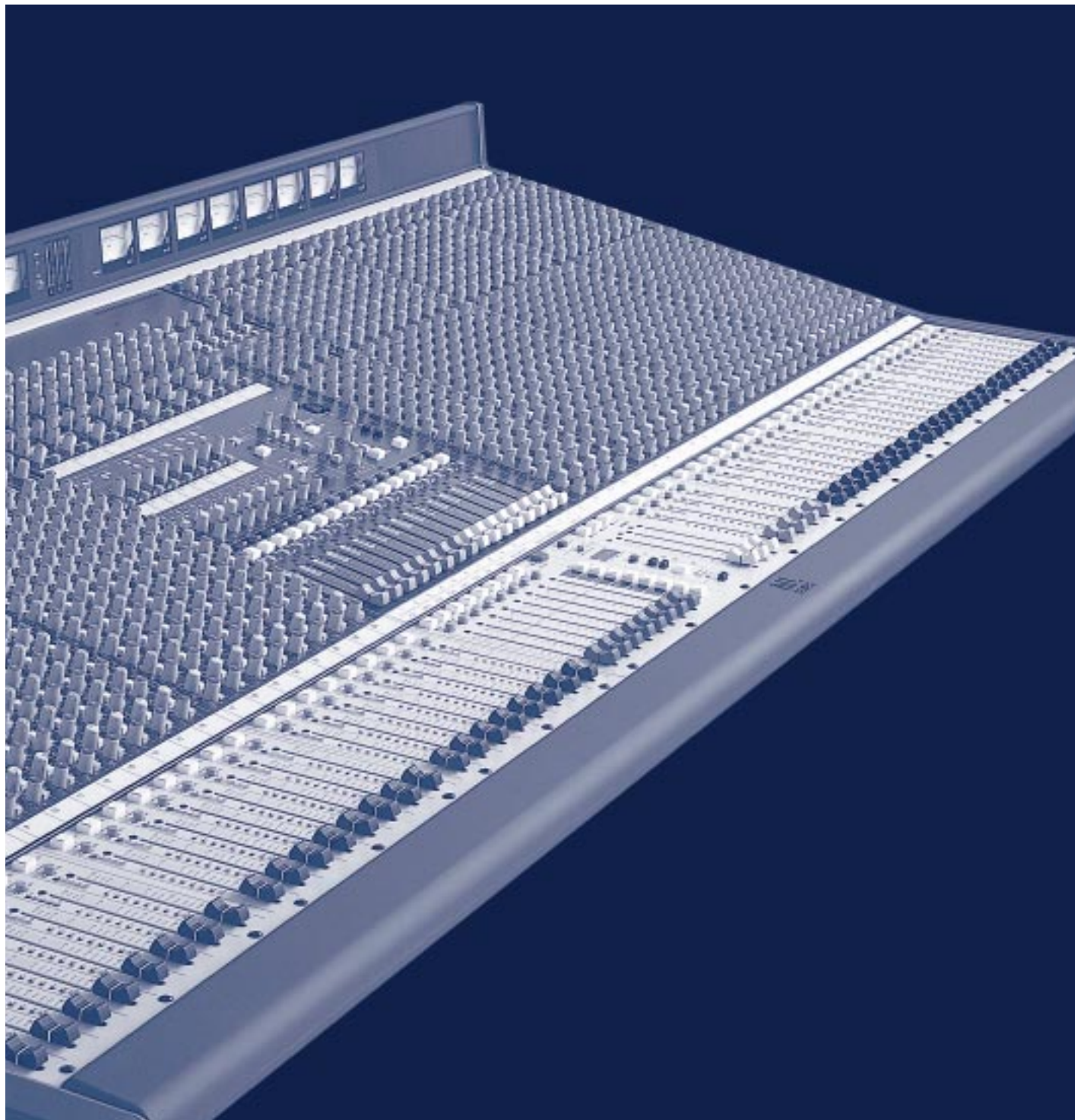
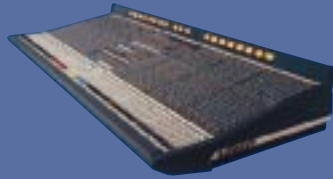


ML 5000

ALLEN&HEATH



ML5000// VIEW-01-03_360°ROTATION. ↓



INTRO//.

The design specification for **ML5000** is probably the most demanding we've ever drawn up - meet all the requirements of large scale live performance without compromise to functionality or sound quality. We've had some sleepless nights along the way, but the results are well worth it.

At all times we've been determined to provide real world solutions to the challenges of live engineering, and at an affordable price. I've also had the chance to develop ideas that have been brewing for some time, such as the need for better LCR capability in mixing consoles, and an even more versatile buss architecture able to satisfy the ever increasing demand for more FoH, stage and in-ear monitor mixes.

My sincere thanks go to all the engineers and other industry professionals whose expertise has contributed to the **ML5000**. We are very proud of the results. I hope that you will be equally proud to be behind the faders.

Carey D

Dual function FoH or Monitors

24 group/aux busses

8 VCA Groups

4 band EQ with fully parametric mids

ML5000// VIEW-04. ↓



Dual function FoH/monitor
32+4, 40+4, 48+4 models
Add up to 2x 24 channel sidecar expanders

L,R,C main mix with LCRplus panning
8 VCA groups
Flexible GRP/AUX structure
8 Subgroups
16 Auxiliary sends
12x8 Matrix
4 Stereo channels
8 Mute groups
128 mute/VCA assign snapshot memories
MIDI/PC control

4 Band EQ with fully parametric mids
Balanced XLR and inserts on all main outputs
Separate send and return jacks
Solo-in-place
Intelligent PAFL system
Extensive channel, mix and output metering
Integral low profile 19VU meterbridge
Talkback assignable to all outputs
Built-in intercom
Oscillator and pink noise generator

4 XLR lamp sockets
High performance power supply
with built in combiner
Rigid frame construction
Separate fader bay
Internally modular

VCA GROUPS//.

Using top quality SSM2018 devices the 8 VCA groups enable powerful control of input channel fader levels without compromising audio performance. The Allen & Heath design team have added extended VCA facilities, giving you more for your investment.

PAFL - Each VCA group can be checked using its PAFL switch. This has the same effect as pressing all the PAFL buttons on channels assigned to that group. PFL routes assigned channel pre-fader signals to the monitor, ideal for checking signal presence before raising the group fader. In AFL mode the channel post-fader post-image signals are routed in stereo so that the contribution of the group to the mix can be heard 'in-place'.

Mute - Mutes all the channels assigned to the VCA group. This also affects the channel pre-fade, post-mute sends. The VCA mutes effectively provide a further 8 mute groups.

Scenes - Channel VCA assignments can be stored in the snapshot memories. For example, in a complex automated theatre production, a group assigned as 'lead vocal' can have different channels assigned as lead according to scene.



VCA GROUPS EXPLAINED//.

VCA's (Voltage Controlled Amplifiers) provide an important alternative to audio subgroups for simultaneously controlling the level of more than one channel using a single fader.

Unlike an audio subgroup, a VCA group simply controls the fader levels of assigned channels using a remote voltage from the group fader. Audio is not routed through the group. This means that all post-fade outputs from assigned channels will be affected by the VCA master faders.

This has important benefits: The balance between the effects and direct signals is maintained, for example the reverb level returned elsewhere in the console also follows the group fader movements. A single VCA group fader is all that is required to control a stereo or LCR group. This would take 2 or 3 faders using audio groups if the channel pan image is to be maintained. The relative balance between all outputs is maintained when moving VCA group faders. A channel can be assigned to more than one VCA group. This lets you assign multi-level groups, or even a 'grand master', impossible with audio groups.

Conventional audio groups are still useful when you need to insert a signal processor to affect a group of signals. Fewer such groups are required on a VCA equipped console. For this reason the **ML5000** provides mode switching to reconfigure unused audio groups as fully featured aux sends.



GRAUX SYSTEM AND DUAL FUNCTIONALITY//.

For FoH, for monitors or for both combined, **ML5000**'s group/aux structure provides more busses and versatility than any other mixer in its class.

There are 16 auxiliary and 8 audio subgroup busses.

GROUPS/AUXES 1-8

The way that the input group and aux send controls function is set using master section 'mode' switches. These switches are recessed to prevent accidental operation and are clearly illuminated with blue LED's:

Mode switch	Channel aux pot function	Channel pre/group switch function	Aux master	Sub group
Up (LED on)	Post-fade aux send	Group routing switch	Rotary	Fader
Down	Pre/post aux send	Pre/post aux switch	Fader	N/a

Rotary masters 1-8 are always post-fade aux sends with AFL and ground compensated TRS jack outputs.

Fader masters 1-8 are individually selectable as either pre/post aux sends or audio subgroups. They include AFL, automated mute, talkback assign, pre and post-fade metering, balanced inserts and balanced XLR output.

Subgroups feature full LCRplus panning to the main outputs so that the groups may be positioned in the LCR image in the same way as the channels. Mono or stereo subgroups may be created with the channel signals selected pre or post pan.

AUX SENDS 9-16

Aux sends 9-16 provide individual pre/post and paired mono/stereo switching. Separate level and pan controls are available when configured as a stereo pair.

Masters 9-16 are fader controlled and include mono/stereo AFL, automated mutes, talkback assign, pre and post-fade metering, balanced inserts and balanced XLR outputs.

Pre-fade auxes are set pre-insert, pre-EQ, post-mute as standard. These can be changed to suit individual preference by simply replugging internal jumpers.

APPLICATIONS//.

FRONT OF HOUSE

Provides 8 audio groups and 16 auxes

Rotaries 1-8 become dedicated post-fade auxes for effects sends. The PRE switches become individual group routing, selectable pre or post channel pan for mono or stereo subgroups.

Fader controlled auxes 9-16 can be configured as mono or up to 4 stereo pairs, ideal for monitors from FoH, more effects, recording or other special feeds.

3 buss main output with LCRplus panning, allowing mono, stereo or true LCR system capability.

8 Matrix outputs derived from grp/aux 1-8, the main outputs and external inputs for multi-speaker control, recording and other special feeds.

8 VCA groups, 8 mute groups, 128 snapshots and MIDI/PC control combine to ease the job of the FoH engineer.

MONITOR

Provides 16 aux mixes.

Up to 4 stereo mixes with individual level and pan - ideal for any combination of wedge and in-ear monitors.

All aux masters are on faders with inserts for patching in individual mix EQ and signal processing.

Engineers listen wedge output on balanced XLR with insert, controlled by a 100mm fader.

Add the individual talkback assign, intelligent PAFL system, stereo local monitor and multi-point metering to ensure the monitor engineer stays in full control.

DUAL FUNCTION

Choose the combination of monitor sends (up to 16) and audio subgroups (up to 8) to suit your application.

No controls are wasted. Assign only as many audio groups as you need, usually just a few for group signal processing when using VCAs for level grouping. The rest become fully featured auxes.

LCR PLUS SYSTEM//.



The **ML5000** LCRplus system extends signal imaging beyond conventional LR and LCR panning by allowing full 3 speaker balance and positioning from each channel and group. This easily satisfies the standard requirements of mono, stereo and conventional LCR speaker systems, as well as providing a unique extended capability.

For example, a backing instrument such as guitar typically routed to the LR speakers can be brought up in the centre speakers for the duration of a lead solo to improve focus and clarity.

Alternatively, in non-ideal situations where the three speakers do not reach all the audience evenly, a small portion of centre cluster lead sounds such as vocals can be blended into the LR stacks so improving coverage. Or, use the C output to feed a centre fill speaker with selected sounds, for example stage mics without the front 'float' mics that would otherwise feed back if routed to the nearby fill.

All this is made possible using just two controls and a single switch:

MAIN MIX - This switch routes the audio to the 3 buss main output. The balance between the outputs is determined by:

BLEND - A new control which adjusts the balance between the LR and C outputs.

PAN - Provides conventional panning between L and R. How much signal is available to LR is set using the blend control.

EXAMPLE SETTINGS//.

MONO PA



Set BLEND fully clockwise to route the signal to C only. LR is not used.

STEREO PA



Set BLEND fully anticlockwise to route the signal to LR only. Use LR to pan conventionally between the stereo speakers. C is not used.

STEREO + CENTRE FILL



Initially set BLEND fully anticlockwise to set up the main LR mix. Then rotate BLEND clockwise to bleed signal to the fill speaker as required. At centre position equal signal is fed to all three outputs. Beyond centre the LR level would drop significantly.

LCR PANNING



Set BLEND to balance between the LR and C speakers. Use PAN to adjust the LR balance. To position between L and C set PAN fully left and adjust BLEND. To position between C and R set PAN fully right and adjust BLEND.

PAFL//.

Input channels can be auditioned pre-fade (PFL) or after-fade (AFL) depending on master section status. Entire VCA groups can be auditioned with a single button press. Input AFL is in-place summing C into L and R so that the balance within the mix can be checked in the stereo monitor. The 32 group, aux and matrix outputs can be checked using AFL. Stereo is automatically selected by pressing two related buttons together, perfect for checking stereo in-ear monitors.

The **ML5000** PAFL system is processor controlled providing a functionality well beyond any hard switched system. Features include timed action for momentary or latched operation, input PAFL override output AFL, auto cancel or add mode, single button all-clear, input PFL /AFL selection and stereo AFL logic.

MUTE SYSTEM//.

8 Mute Groups - These allow selected combinations of channels to be muted with a single button press. All channel, output and matrix mutes can be assigned. Multiple groups can be selected and the editing includes a useful clear/set all function.

128 Mute/VCA Snapshots - These onboard memories store and recall console mute and/or VCA assignment settings. Either or both can be disabled from the snapshots according to operating preference, to disable the system when not used, or to use it as a MIDI controller only. A global clear/set function is available for quick setup and snapshots can be previewed prior to recall. There is a read-only mode to prevent favoured settings being overwritten by guest operators.

Solo In Place - This mode provides a 'destructive' solo function that mutes all channels except for the one or more being checked, used for listening to the contribution of individual signals in the mix during sound check. A two button press is needed to enter SIP mode, preventing accidental operation during performance. Advanced functions include solo safes setup, clear all and toggle last solo.

Safes - There are two Safe setups which can be created. One isolates selected channels from control by snapshots, groups and MIDI - ideal for those 'on-the-fly' changes made to the pre-programmed show. The other lets you define which channels are safe from Solo In Place activity, for example main outputs and effects return channels that should not be muted when a solo is selected.



MATRIX//.

The **ML5000** provides a 12 x 8 matrix sourced from GRP/AUX 1-8, the main LRC mix and external inputs. Conveniently positioned away from the other controls, these can be used to create independent mixes for distributed speaker systems, recording, broadcast, video and other special feeds. They include automated mutes, talkback assign, balanced XLR outputs and inserts for patching in important processing such as EQ, dynamics or delay. The outputs can be auditioned in mono or stereo by simply pressing one or two AFL buttons together.

THE 'ENGINEERS TOOLBOX'//.

Lying at the heart of the Master Section is the engineer's control panel. This provides all the tools the engineer needs to stay in full control including status switching, console monitoring, system line up and communications.

METERS - Selects whether the right hand VU meters display aux 9-16 or matrix 1-8 signals.

SOLO-IN-PLACE - Puts the console into destructive SIP mode, indicated by flashing status. This requires simultaneous pressing of the SHIFT key in the fader area to prevent accidental operation during performance.

PFL/AFL - Two switches determine the operating mode of the P/AFL system. **AUTO-CANCEL** where pressing a P/AFL button automatically turns off any previous selection, or **ADD MODE** where several buttons can be pressed to add to the mix, and **INPUT PFL/AFL** to select whether the input PAF/L buttons action PFL or AFL in-place.

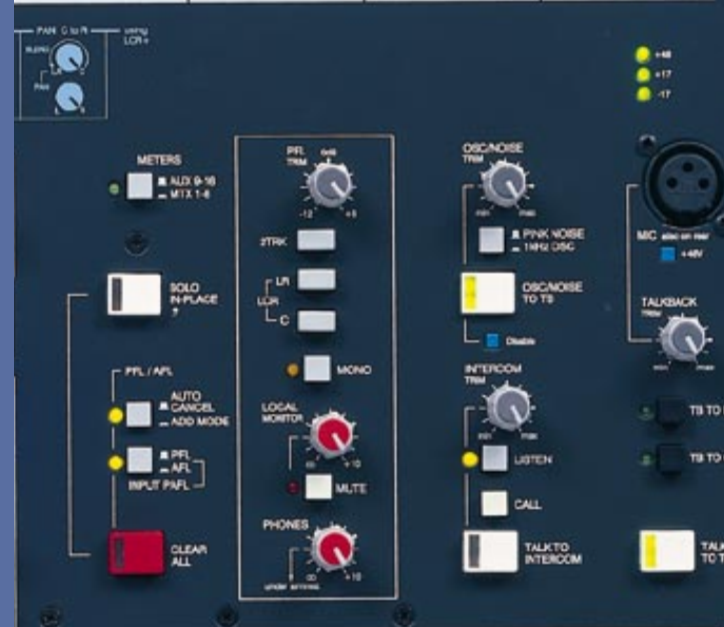
CLEAR ALL - In normal mode this clears any P/AFL selection. In SIP mode it clears the solo selection by restoring the full mix, and is also used to toggle between full mix and last solo, useful in comparison checking.

MONITOR SECTION - Provides control of the headphones and stereo local monitor outputs. Source selection is LR, C or 2TRK. Pressing LR and C together mixes C into L and R, ideal for checking a 3 speaker LCR system. Pressing 2TRK overrides the LR,C selection for easy A/B comparison while P/AFL overrides any source. A PFL level trim is provided for more comfortable matching to the mix level. The source can be checked in mono and the local output muted for headphones only monitoring. The headphones plug in under the front armrest to avoid cables trailing across the panel.

OSC/NOISE - The built-in generator produces either a pink noise signal for system and speaker testing, or a 1kHz sine wave for equipment line up. The large button routes it to any output with its TB assign switch selected. The recessed **DISABLE** switch prevents operation during live performance.

INTERCOM - A ClearCom-compatible interface is built into the console. This uses the talkback mic and monitor headphones to communicate with other stations, so preventing the annoying complication of wearing two headsets. A large lamp in the meterbridge attracts the engineer's attention when signalled. The engineer selects **LISTEN** to choose when to listen in to the intercom.

TALKBACK - There are two inputs, one here for a plug-in gooseneck mic, the other on the rear panel for a cable mic. The recessed switch selects phantom power. Pressing the large button lets the engineer talk to any of up to 27 outputs with their TB assign switches selected. The button illuminates to warn if any destination is assigned.





MONO INPUT//.

INPUT - XLR for mic or line level signals. +48V is individually switched for phantom powered microphones.

INSERT - Separate send and return TRS jacks, post HPF, pre-EQ

DIRECT OUTPUT - TRS jack. Set post-fader as standard with level trim using aux1 pot. Internal option links for pre-fade or post-fade.

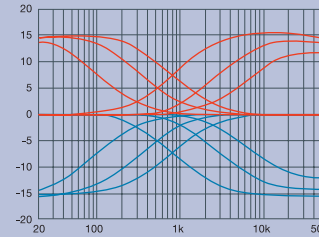
INPUT STAGE - Carefully engineered to maintain the sonic quality of the original source, this stage matches any mic or line signal from a low -60dBu to a high +10dBu nominal operating level. With a +31dBu maximum input capability there is plenty of headroom available.

HIGH PASS FILTER - 12dB/octave slope with frequency adjustable from 20Hz to 400Hz. Includes an in/out switch for instant comparisons between straight and filtered signals, or to maintain minimum signal path when the filter is not required.

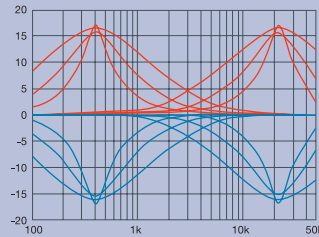
4 BAND PARAMETRIC EQ - A powerful tool, tailored for corrective or creative live performance control. HF and LF are shelving response. The mids are fully parametric with Q sweep to allow precision sound shaping whether broad-brush or tight narrow band. The 4 bands each provide extended range frequency sweep. Adjacent bands overlap so that two can be used to deal with particular problem sounds when needed, for example using low shelf and mid bell to tighten up a sloppy bass.

As usual, dual-concentric pots have been avoided to ensure that you can grab the controls you need in an instant - another example of Allen & Heath's commitment to real world usability.

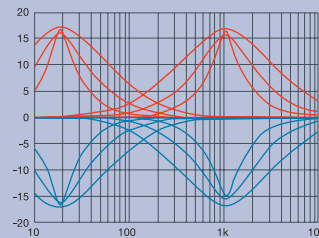
EQ AND FILTERS//.



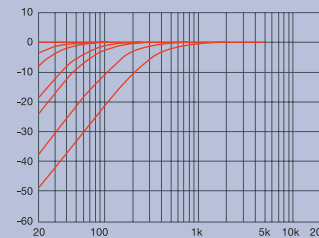
LF & HF EQ



HIGH MID EQ



LOW MID EQ



LO CUT FILTER



CHANNEL//.

GRP/AUX SENDS 1-8 - In GROUP MODE the PRE switches become the individual group routing assigns and the pots become dedicated post-fade sends to the rotary aux masters. In AUX MODE these become aux sends individually switched pre/post fader.

AUX SENDS 9-16 - Switched pre or post fader in pairs. Related pairs may be switched as stereo pairs. Up to 4 true stereo auxes may be configured. As mono auxes the L and R signals are summed together. As stereo auxes separate level and pan controls are configured.

BLEND - Balances the signal between the LR and C outputs. Set fully anticlockwise for stereo PA, clockwise for mono PA, or adjust as required together with PAN when driving an LR+fill or a 3 speaker LCR system.

PAN - Conventionally positions the signal between the L and R outputs. Used with the BLEND control this can adjust the signal balance within a 3 output LCR system.

MAIN MIX - This single switch routes the channel signal to the L,R,C main output. The required balance is seamlessly adjusted using BLEND and PAN.

GRP PAN ON - Sends the post-pan signal to the channel routing switches when creating stereo groups. This is not affected by the BLEND control. In the normal up position the pre-pan signal is sent for creating mono groups not affected by pan.

MUTE - Turns the channel signal on or off. It is also used when editing mute or VCA groups, and to solo the channel when in SIP mode.

SAFE/EDIT - This LED normally displays which channels have been made safe. In edit mode it lights if the channel is assigned to the group being edited. In preview mode it lights if the channel is muted in the snapshot being previewed.

PAFL - Auditions the channel in the headphones, local monitor and wedge output (if wedge mode is selected). Sends the mono pre-fader signal or the stereo in-place post-fader signal depending on the master PFL/AFL switch.

METER - Displays the pre-fader signal on the 5 segment channel meter. The top red LED is a multi-point peak indicator which also lights if the pre-insert, pre-EQ or post-fader signal reaches 5dB before clipping.

VCA ASSIGN - These LEDs display which VCA groups the channel is assigned to. In preview mode they display the assignment in the snapshot being previewed.

FADER - 100mm Alps K-fader provides local DC control of the channel VCA.



STEREO INPUT//.

4 fully featured dual stereo channels are fitted as standard to each frame size in addition to the standard channel count.

Stereo inputs allow connection of 2 stereo sources. These can be selected individually or mixed together, for example mixing two different reverb returns into one channel. They are more suitable for effects, 2-track players and other stereo devices than conventional aux returns, as they include full EQ, can be routed to any mix, provide metering and fader control, and are part of the console mute and VCA system.

INPUT A - TRS jacks

INPUT B - XLR

INPUT STAGE - Each input has its own gain control and on/off switch. This means that the gain does not need to be reset when switching between inputs, and that the required balance can be adjusted when mixing the two sources together. The gain range of -6 to +18dB easily matches the connected line sources.

MONO LR - With both switches up the selected source is routed through the channel in stereo. Press MONO L to select the left signal as a mono source, MONO R to select the right, or both to sum L and R together.

4 BAND EQ - LF and HF are shelving response with turning point frequencies set at 60Hz and 12kHz respectively. The mid bands are bell response with centre frequencies set at 250Hz and 2.5kHz, optimised to deal with typical live sound source problems or creative shaping.



WEB SITE INFORMATION//.

Our dedicated site, www.ML5000.com, is the best place to get the latest information on the console, including up to date applications information, news stories, development news, downloads and more. It is also a great way to keep in touch with the factory with any questions, comments or suggestions that you have. Information available from the web site includes:

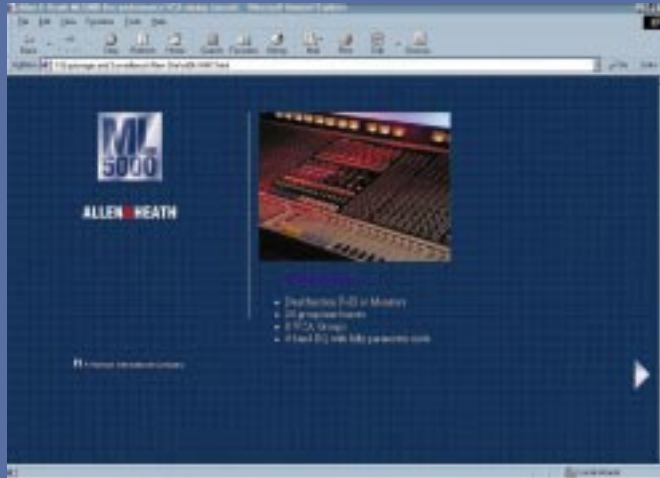
Brochures

Cue sheets

Panel drawings

Block diagrams

Descriptions of key features such as VCA's, LCRplus and group/aux system



BUILD QUALITY//.

The **ML5000** frame is constructed using 3-point fixing extruded aluminium beams, a proven means of minimising weight whilst retaining great strength. The folded steel fader bay and panel segments form box sections creating an extremely rigid, low-torsion package - essential for tough touring work.

The flat fader bay conveniently separates out important performance controls and provides a comfortable working surface. It also makes servicing the faders very easy as they can be removed from the front, although with high-quality VCA faders this is not a facility that you are likely to use very often!

As you would expect from Allen & Heath, the **ML5000** is built with individual, vertically mounted circuit boards with all pots firmly secured using steel nuts, and interconnected using pluggable harnesses for convenient servicing. Metal TRS jack sockets and gold plated XLRs are used throughout. Configuring internal links such as the aux options is also a simple matter of re-plugging rather than soldering.

Much has been invested in the console styling - not just for pleasing aesthetics, but also to provide wrap-around protection, add to operator comfort, aid control identification in all lighting conditions with practical use of colour, and allow convenient flightcasing.

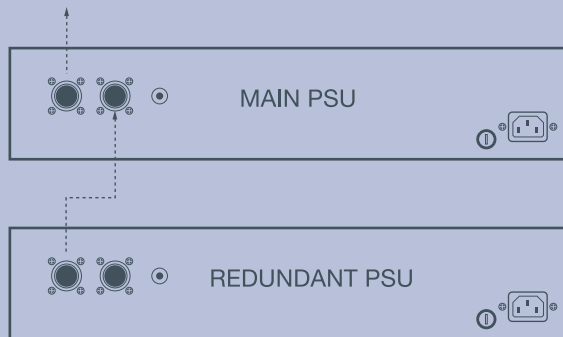


METERBRIDGE//.



The low profile integral meterbridge spans the full length of the console and provides no fewer than 19 illuminated VU meters, 3 LED bar meters, a large CALL lamp and P/AFL active indicators. The 8 right hand meters can be switched to display either aux 9-16 or the matrix outputs. The main LR and C outputs are displayed simultaneously on both VU and LED peak meters giving the best of both types of metering. These automatically switch to display any active P/AFL signal in mono or stereo+mono sum as appropriate.

POWER SUPPLY//.



The rugged new **MPS14** slimline 2U rack mount power supply uses proven switched mode technology with linear post regulation to ensure the quietest performance. Full protection and thermal sensing fan cooling is provided. It also has a built in combiner for connection to a second supply for backup. It includes two heavy duty DC connectors for plugging to the console and linking in a redundant supply.

SIDECAR//.

Standard **ML5000** frame sizes are 32 mono+4 stereo, 40+4 and 48+4. Up to two 24 channel sidecar expanders can be added, bringing the maximum channel count to 96. Allen & Heath's **ML5000-24SC** sidecar is a compact stand-alone unit providing 24 channels with the same input and fader modules as the main console. It is independently powered and connects to the main console using a 9way logic and three 37way audio link cables.



DIMENSIONS//.



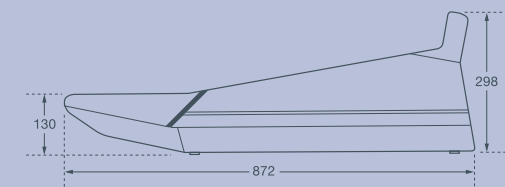
ML5000-32
Width = 1596mm
Weight = 84kg
(185lbs)



ML5000-40
Width = 1851mm
Weight = 96kg
(211lbs)



ML5000-48
Width = 2103mm
Weight = 110kg
(242lbs)



TECHNICAL SPECIFICATIONS//.

ML5000 Technical Specifications

0 dBu = 0.775 Volts rms

OPERATING LEVELS

Channels	0dBu	Headroom +21dB
Mix	-2dBu	Headroom +23dB

FREQUENCY RESPONSE

Referred to 1kHz at +4dBu

Mic to main output	(+40dB)	20Hz to 30kHz	+0/-0.5dB
Line to main output	(0dB)	20Hz to 30kHz	+0/-0.5dB

DISTORTION @1kHz +14dBu

THD+noise	< 0.01%
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CMRR

Common mode rejection @1kHz

Mic (+40dB)	> 80dB
Mic + Pad (0dB)	> 50dB

CROSSTALK

Referred to driven channel @1kHz

Channel to channel	< -100dB
Mute shutoff	< -90dB
Fader shutoff	< -90dB

NOISE PERFORMANCE

Measured rms 22Hz to 22kHz unweighted

Mic EIN with 150 ohm source	-128dB
Residual output noise	< -94dBu (-98dB SN)
Mix noise, nothing routed	< -84dBu (-88dB SN)
Mix noise, 24 channels routed	< -80dBu (-84dB SN)

METERING

Reading	0+4dBu at XLR outputs
LED meters	Peak reading, 3 colours
VU meters	Ave reading, Illuminated moving coil
Peak indicators	5dB before clip, multi-point sensing
Input meters	5 segment LED (sig, -6, 0, +6, pk)
Group mix meters	5 segment LED (sig, -6, 0, +6, pk)
Group/Matrix meters	VU
L,R,C meters	VU and 16 segment LED

CHANNEL FILTERS

Slope	12dB/oct high pass
Frequency	20Hz to 400Hz variable

MONO EQUALISER

HF	+/-15dB, 2kHz to 20kHz shelf
HM	+/-15dB, 400Hz to 20kHz bell, Q = 0.6 to 2.5
LM	+/-15dB, 20Hz to 1kHz bell, Q = 0.6 to 2.5
LF	+/-15dB, 20Hz to 200Hz shelf

STEREO EQUALISER

HF	+/-15dB, 12kHz shelf
HM	+/-15dB, 2.5kHz bell
LM	+/-15dB, 250Hz bell
LF	+/-15dB, 60Hz shelf

LAMP CONNECTORS X4

Connector	XLR-F 4pin
Rating	12V 400mA max

POWER SUPPLY MODEL MPS14

Type	External 2U high rack or floor mount
Mains input	100-230V 50/60Hz universal input
Power consumption	500W
Full protection and fan cooling	

CONNECTIONS//.

INPUTS

Mic (Pad out)	XLR	balanced, pin2+	2kohm	variable -60 to -10dBu	Max +11dBu
Mic (Pad in)			>20kohm	variable -40 to +10dBu	Max +31dBu
Stereo A	TRS jack	balanced, tip+	>20kohm	variable -18 to +6dBu	Max +27dBu
Stereo B	XLR	balanced, pin2+	>20kohm	variable -18 to +6dBu	Max +27dBu
2-Track	TRS jack	balanced, tip+	>20kohm	+4dBu	Max +25dBu
Matrix Ext in	TRS jack	balanced, tip+	>20kohm	+4dBu	Max +25dBu

INSERTS

Input send	TRS jack	ground comp, tip+	<50ohm	0dBu	Max +21dBu
Input return	TRS jack	balanced, tip+	>20kohm	0dBu	Max +21dBu
Output send	TRS jack	ground comp, tip+	<50ohm	-2dBu	Max +21dBu
Output return	TRS jack	balanced, tip+	>20kohm	-2dBu	Max +21dBu

OUTPUTS

L,R,C	XLR	balanced, pin2+	<75ohm	+4dBu	Max +26dBu
Grp/Aux 1-16	XLR	balanced, pin2+	<75ohm	+4dBu	Max +26dBu
Matrix 1-8	XLR	balanced, pin2+	<75ohm	+4dBu	Max +26dBu
Post Aux 1-8	TRS jack	ground comp, tip+	<50ohm	-2dBu	Max +21dBu
Direct out	TRS jack	ground comp, tip+	<50ohm	0dBu	Max +21dBu
2-Track	TRS jack	ground comp, tip+	<50ohm	+4dBu	Max +21dBu
Local Monitor	TRS jack	ground comp, tip+	<50ohm	0dBu	Max +21dBu
Headphones	TRS jack	tip left, ring right for stereo headphones	>30 ohms		



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